WOLVERINE

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Wolverine (*Gulo gulo luscus*)

Current Status: Not Listed

Species description: The wolverine is the largest terrestrial member of the family Mustelidae. Adult males weigh 12 to 18 kilograms (26 to 40 pounds) and adult females weigh 8 to 12 kilograms (17 to 26 pounds). The wolverine resembles a small bear with a bushy tail. It has a broad, rounded head; short, rounded ears; and small eyes. Each foot has five toes with curved, semi-retractile claws used for digging and climbing.

Location: In North America, wolverines occur within a wide variety of habitats, primarily boreal forests, tundra, and western mountains throughout Alaska and Canada; however, the southern portion of the range extends into the contiguous United States.

Currently, wolverines are found in the North Cascades in Washington and the Northern Rocky Mountains in Idaho, Montana, Oregon (Wallowa Range), and Wyoming. Individual wolverines have also moved into historic range in the Sierra Nevada Mountains of California and the Southern Rocky Mountains of Colorado, but have not established breeding populations in these areas.

Click here to view Wolverine photos on **Flickr**

Distribution, Breeding, Diet, & Range »

Distribution: Research indicates that wolverines either did not exist as established populations or were extirpated prior to settlement and to the compilation of historical records in the Great Lakes region, possibly due to climate changes that occurred through the 1800s and 1900s. The widely scattered records from this region are consistent with dispersing individuals from a Canadian population that receded north early in the 1800s. The possibility that wolverines existed as established populations prior to the onset of trapping in this area cannot be ruled out, but we have no evidence that they did. No evidence in the historical records suggests that wolverines were ever present as established populations in the Great Plains, Midwest, or Northeast.

The delineation of wolverine historical and present distribution is inherently difficult for several reasons. Wolverines tend to live in remote and inhospitable places away from human populations. Wolverines naturally occur at low densities and are rarely and unpredictably encountered where they do occur. Wolverines often move long distances in short periods of time when dispersing from natal ranges, making it difficult or impossible to distinguish with confidence between occurrence records that represent established populations and those that represent short-term occupancy without the potential for establishment of home ranges and reproduction. These natural attributes of wolverines make it difficult to determine their present range, or trends in range expansion or contraction that may have occurred in the past.

Breeding: Breeding generally occurs from late spring to early fall. Females undergo delayed implantation until the following winter to spring, when active gestation lasts from 30 to 40 days. Litters are born between February and April, containing one to five kits, with an average in North America of between 1 and 2 kits.

Female wolverines use natal (birthing) dens that are excavated in snow. Persistent, stable snow greater than 1.5 meters (5 feet) deep appears to be a requirement for natal denning, because it provides security for offspring and buffers cold winter temperatures.

Diet: Wolverines are opportunistic feeders and consume a variety of foods depending on availability. They primarily scavenge carrion, but also prey on small animals and birds, and eat

fruits, berries, and insects. Wolverines have an excellent sense of smell that enables them to find food beneath deep snow.

Range: Wolverines require a lot of space; the availability and distribution of food is likely the primary factor in determining wolverine movements and home range size. Wolverines travel long distances over rough terrain and deep snow, and adult males generally cover greater distances than females. Home ranges of wolverines are very large, but vary greatly depending on availability of food, gender, age, and differences in habitat. These home range sizes are large for mammals of the size of wolverines and may indicate that wolverines occupy a relatively unproductive niche.

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October 8, 2020: The best available science show that the factors affecting wolverine populations are not as significant as believed in 2013 when the U.S. Fish and Wildlife Service (Service) proposed to list the wolverine found in the contiguous United States as threatened.

New research and analysis show that wolverine populations in the American Northwest remain stable, and individuals are moving across the Canadian border in both directions and returning to former territories. The species, therefore, does not meet the definition of threatened or endangered under the Endangered Species Act (ESA). Accordingly, the Service has withdrawn its listing proposal.

- Press Release: **Science Show Wolverines in the Contiguous U.S. Are Healthy**
- **Wolverine Species Status Assessment**
- **NOAA: High-resolution snow projections developed to inform wolverine conservation**
- **Withdrawal Announcement FAQs »**

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Withdrawal Announcement FAQs »

Q: Why is the U.S. Fish and Wildlife Service announcing this withdrawal today?

A: On February 4, 2013, we published a **proposed rule** to list a distinct population segment of the North American wolverine found in the contiguous United States as threatened. On August 13, 2014, we withdrew that proposed rule based on our conclusion that the factors identified as affecting the distinct population segment were not as significant as believed at the time of its publication.

In October 2014, three complaints were filed in the District Court for the District of Montana by Defenders of Wildlife, WildEarth Guardians, Center for Biological Diversity and other organizations challenging the withdrawal. Numerous parties intervened in the litigation. These three cases were consolidated, and on April 4, 2016, the court issued a decision. As a result, the August 13, 2014, withdrawal was remanded to the Service for further consideration consistent with the order, returning the process to the proposed rule stage and the status of the wolverine under the Endangered Species Act to that of a proposed species.

Today's decision completes our response to the 2016 court order and again withdraws our 2013 proposal to list the species. This decision reflects the latest and best available

science, including improvements to our understanding of the biology and behavior of the species, as well as advances in snow and climate modeling.

Q: How many wolverines are in the contiguous United States?

A: By their nature, wolverines are difficult animals to survey. Populations occur in highly remote areas and in naturally low densities across their North American range due, in large part, to their need for large, exclusive territories. At present, there is no reliable estimate of the number of wolverines that currently occupy or previously occupied the contiguous United States, nor are there reliable quantitative estimates of wolverine population trends. The often-cited population estimate of 318 wolverines (range: 249–926) is derived from a **2013 model** to predict suitable habitat that also estimated the potential wolverine capacity to be 644 individuals. However, these estimates did not consider important spatial considerations related to wolverine behavior, such as territoriality, and are not a definitive population count across the western United States.

As discussed in the **wolverine species status assessment**, preliminary field results from the state wildlife agencies' 2016–2017 occupancy study across Idaho, Montana, Washington and Wyoming report a total of 86 photographic detections through camera-trapping and 157 wolverine hair samples collected for genetic analysis. It has not yet been determined from the camera-trap images or hair samples how many of the detections are unique individuals.

There are many fewer wolverines in the contiguous United States than there are in Canada and Alaska, but this is most likely a result of the amount of naturally occurring habitat available within the contiguous United States, both currently and historically, for a species that needs large, exclusive territories, and is not a reflection of poor conservation.

Q: What is a Species Status Assessment?

A: A species status assessment is a focused, repeatable and rigorous scientific assessment of biological risk that aids decision makers who must use the best available scientific information to make policy decisions under the Endangered Species Act. It begins with a compilation of the best available information on the species' life history, habitat and taxonomy. Next, it describes the current condition of the species' habitat and demographics (i.e. how the population changes over time), and the probable explanations for past and ongoing changes in abundance and distribution within the species' range. Last, a species status assessment forecasts the species' response to probable future scenarios of environmental conditions and conservation efforts.

Q: How long into the foreseeable future did the Service forecast its projection to determine whether the wolverine would meet the definition of "threatened?"

A: The future time frame evaluated in our analysis is approximately 38 to 50 years, which includes the potential for observing several generations of species and captures our best professional judgment of the projected future conditions related to trapping/harvesting, climate change, or other potential cumulative impacts. We note in our species status assessment that evaluations of future conditions for the species have an inherent level of uncertainty relative to demographic risks, particularly those related to climate change projections, and beyond this range of time, modeling uncertainty increases substantially.

Q: Why is the wolverine not considered a distinct population segment?

A: In light of the updated analysis and new information in the wolverine species status

assessment, we re-evaluated whether wolverines in the contiguous United States meet the criteria of a distinct population segment. According to **our policy**, a population must be both discrete in relation to the remainder of the species, and significant to the remainder of the taxon to which it belongs in order to qualify. We have concluded that the population of wolverines in the contiguous United States is not discrete, as defined in our policy.

Wolverines currently occupying the contiguous United States do not meet the definition of discrete because they are a metapopulation that is genetically connected to the wolverines in Canada. New information from genetic and observational studies shows that wolverines in the lower 48 are connected to populations in Canada and Alaska, these populations interact on some level, and migration and breeding is possible between groups. For example, wolverines in the North Cascades region of Washington are known to move into British Columbia. Furthermore, there are no differences in management or conservation status between wolverines in the lower 48 and Canada that are significant or represent an inadequacy of existing regulatory mechanisms to conserve the species. Therefore lower 48 wolverines are not discrete from the remainder of the taxon. This means that the wolverines in the lower 48 states do not qualify as a distinct population segment and they are instead an extension of the population of wolverines found further north, a positive sign for the long-term health of the species.

Q: What does the science show in regard to the impact of climate change on wolverines?

A: Climate change model projections for the range of the wolverine within the contiguous United States indicate increases in temperature by the mid-21st century. Snow cover is projected to decline in response to warming temperatures and changing precipitation patterns, but this varies by elevation, topography and geographic region. In general, models indicate higher elevations will retain more snow cover than lower elevations, particularly in early spring. Our review of projected snow persistence (to approximately year 2055) within the Northern and Southern Rocky Mountains indicates that several hundred square kilometers/miles of snow at a depth of 20 inches or more will persist on May 1 at the elevations used by wolverines for denning.

Our snow retention and climate assessments were conducted by the National Oceanic and Atmospheric Administration and the University of Colorado Boulder's Cooperative Institute for Research in Environmental Sciences. For more information, see page 73 of our **species status assessment**.

It is also important to note that new wolverine research has provided evidence that snow cover is not as critical as previously thought to denning, with individuals observed outside previously modeled projections of spring snow cover.

Q: What new information have scientists learned about the wolverine since the Service's February 2013 proposal?

A: Several new wolverine studies have been published in this time, improving our understanding of wolverine biology while also highlighting new insights into the species' environmental needs. A complete list of citations is available in our species status assessment.

Of particular note, wolverine populations and wolverine dens have been observed outside previously modeled projections of spring snow cover, making the presence of snow for denning not as important as previously thought. In addition, in the species status assessment, we evaluated the potential impacts of legal trapping in southern Canada, an analysis that was not conducted for the 2013 proposal or the 2014 withdrawal. Based on this new analysis, we

find that legal trapping does not represent a barrier or stressor to wolverines migrating into the United States at the individual or population level.

Q: What basic elements do wolverines need to survive in the U.S.?

A: Overall, the best available information indicates that the wolverine's physical and ecological needs in the contiguous United States include:

- Large territories in relatively inaccessible landscapes; at high elevation (5,906 to 11,483 feet.)
- Access to a variety of food resources that vary with seasons.
- Physical and structural features (e.g., talus slopes, rugged terrain) linked to reproductive behavioral patterns.

Q: How can the Service make a determination that the wolverine is not threatened or endangered without accurate population numbers?

A: Actual current population size, growth rate and current population trends are unknown for wolverines in the contiguous United States due to the lack of abundance information and the natural behavior of the species. However, the best available information does not indicate either increasing or declining numbers of the wolverine in North America, including the contiguous United States. Currently, we are seeing expansion of wolverines into historically occupied areas in the contiguous United States. Further, at this time, the best available information does not indicate that the species' abundance is significantly impacted by the stressors evaluated (singly or cumulatively), and this situation is unlikely to change in the future, supporting current and future resiliency.

Q: Why does the forecast stop at 2055? What is projected to happen to wolverines after then as effects of climate change increase?

A: The future timeframe evaluated in our SSA analysis is approximately 38 to 50 years, which captures consideration of the projected future conditions related to trapping/harvesting, climate change, or other potential cumulative impacts (Service 2018, p. 73) through 2055. We believe this is a reasonable timeframe to consider for our analysis as it also includes the potential for observing these effects over several generations of the wolverine. We cannot speculate beyond the foreseeable future in making listing determinations.

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Last modified: January 06, 2021